

Claims

- [c1] 1. A driving circuit for a display device having a plurality of pixels, wherein the driving circuit is used for driving the light-emitting device in each pixel, the driving circuit comprising:
- a light-emitting device driving unit coupled to the light-emitting device for providing a driving current to the light-emitting device selectively; and
- a discharging unit coupled to the light-emitting device driving unit for discharging the light-emitting device according to the voltage level of a control signal as soon as the light-emitting device driving unit provides a driving current to the light-emitting device.
- [c2] 2. The driving circuit of claim 1, wherein the driving circuit may further include a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level "1", the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting device.
- [c3] 3. The driving circuit of claim 2, wherein the control signal uses the scan signal from the next pixel.
- [c4] 4. The driving circuit of claim 3, wherein the discharging unit discharges the light-emitting device when the scan signal on the next pixel is at a logic level "1" or a high voltage level.
- [c5] 5. The driving circuit of claim 1, wherein the discharging unit is coupled to a ground potential so that electric charges are discharged from the light-emitting device to the ground.
- [c6] 6. The driving circuit of claim 1, wherein the discharging unit is coupled to a negative voltage so that electric charges are discharged from the light-emitting device to the negative voltage terminal.
- [c7] 7. The driving circuit of claim 1, wherein the discharging unit is a transistor and the transistor is switched on to discharge the light-emitting device according to the voltage level of the control signal.

- [c8] 8. The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a ground potential so that electric charges in the light-emitting device discharge to the ground when the transistor is turned on by the control signal.
- [c9] 9. The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a negative voltage terminal so that electric charges in the light-emitting device discharge to the negative voltage terminal when the transistor is turned on by the control signal.
- [c10] 10. The driving circuit of claim 1, wherein the light-emitting device includes an organic light emitting diode (OLED).
- [c11] 11. The driving circuit of claim 1, wherein the light-emitting device includes a molecular light-emitting diode.
- [c12] 12. A display device having a plurality of pixels, wherein each pixel has a driving circuit for driving the light-emitting device inside each pixel, the driving circuit comprising:
a light-emitting device driving unit coupled to the light-emitting device for providing a driving current to the light-emitting device selectively; and
a discharging unit coupled to the light-emitting device driving unit for discharging the light-emitting device according to the voltage level of a control signal as soon as the light-emitting device driving unit provides a driving current to the light-emitting device.
- [c13] 13. The display device of claim 12, wherein the driving circuit may further include a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level "1", the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting device.
- [c14] 14. The display device of claim 13, wherein the control signal uses the scan

signal from the next pixel.

- [c15] 15. The display device of claim 14, wherein the discharging unit inside the driving circuit discharges the light-emitting device when the scan signal on the next pixel is at a logic level "1" or a high voltage level.
- [c16] 16. The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a ground potential so that electric charges are discharged from the light-emitting device to the ground.
- [c17] 17. The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a negative voltage so that electric charges are discharged from the light-emitting device to the negative voltage terminal.
- [c18] 18. A method of driving a display device, wherein the display device has a plurality of pixels and the driving method is used for driving the light-emitting device inside each pixel, the driving method comprising the steps of:
providing a driving current to one of the light-emitting devices selectively; and
discharging the light-emitting device according to the voltage level of a control signal while the light-emitting device is driven by a driving current.
- [c19] 19. The driving method of claim 18, wherein the step of providing a driving current to one of the light-emitting devices selectively includes providing a driving current to the light-emitting device when a scan signal and a data signal sent to the display device are at a logic level "1" or a high voltage level.
- [c20] 20. The driving method of claim 19, wherein the control signal is provided by the scan signal of the next pixel in the display device.